IMPACT OF CHAKRA MEDITATION AND MINDFULNESS MEDITATION ON SELECTED PSYCHOLOGICAL AND PHYSIOLOGICAL VARIABLES AMONG ATHLETES

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Certificate

I hereby declare that the short synopsis "IMPACT OF CHAKRA MEDITATION AND MINDFULNESS MEDITATION ON SELECTED PSYCHOLOGICAL AND PHYSIOLOGICAL VARIABLES AMONG ATHLETES" being submitted for the degree of Doctor of Philosophy in Physical education to Lakshmibai National Institute of Physical Education, Gwalior during the academic year 2023- 24, is a bonafide record of original work carried out under the supervision of Prof. (Dr.) Mahendra Kumar Singh and has not been submitted in full or part to any other university or institute for a degree or diploma.

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Abstract

The present study aims to find out the effect of Chakra Meditation and Mindfulness Meditation on selected Psychological and physiological variables among athletes. In the relentless pursuit of athletic excellence, athletes and coaches constantly seek training methods that optimize physical and mental performance. The following objectives will be set for the study: firstly, to find out the difference between Chakra Meditation and Mindfulness Meditation training among athletes. Secondly, to find out the changes in Stress, Anxiety, Depression, Mental well-being and Emotion Regulation among athletes, lastly to find out the changes in HRV, Oxygen Saturation level, Heart Strain, Breath Rate and Blood Pressure among athletes before and after the administration of tests. The study will be delimited to 45 Athletes from LNIPE Gwalior, who has at least participated at University/National Level. The age group of the subject shall be delimited to 17-25 years. The study will be restricted to two different variations of meditation- Chakra Meditation and Mindfulness Meditation. Physiological variables will be evaluated using standardized field tests, while psychological traits will be measured using DASS Questionnaire, Emotion Regulation questionnaire and WHO-5 Well-being Index. Descriptive statistics and Two-Way ANOVA will determine the significant difference among the different variations of chakra meditation and mindfulness meditation on selected psychological and physiological variables at 0.05 level of significance in SPSS 26. The study seeks to benefit the athletes to enhance the selected Psychological and physiological functions helping in the enhancement of Sports Performance. This present study may also aid the athletes to find out and analyse their strengths and weaknesses and to work on these areas. This research study may spread awareness about the benefits of Yogic intervention on academic performance by enhancing the knowledge of the selected Psychological and physiological Aspects.

Keywords

Chakra Meditation, Mindfulness Meditation, Sports, DASS (Depression, Anxiety, Stress Scale) Questionnaire, Psychological Traits, HRV, Mental well-being, Emotional Regulation.

CHAPTER – I
INTRODUCTION

1.1 Background of the study

In the relentless pursuit of athletic excellence, athletes and coaches constantly seek training methods that optimize physical and mental performance. While traditional training regimens emphasize strength, speed, and skill development, there's a growing recognition of the valuable role holistic practices like yoga can play in enhancing overall athleticism (Elwy, et al. 2014). This research paper delves into the multifaceted relationship between yoga and sports performance, examining the scientific evidence supporting its benefits and exploring its potential applications across various athletic disciplines.

By synthesizing existing research and literature, it is seen that yoga can enhance flexibility, balance, strength, mental focus, and recovery. Furthermore, it will address the physiological and psychological mechanisms underlying these benefits, emphasizing the importance of a holistic approach to training. Yoga can be a valuable tool for athletes to improve flexibility, balance, and coordination, which are all essential for optimal. Research, such as the study on college athletes (Polsgrove et al., 2016), suggests that incorporating yoga into training can enhance these fitness components.

In addition to its physical advantages, yoga, especially Yin Yoga, provides athletes with a distinct chance to foster tranquility in both their minds and bodies. This technique promotes relaxation and mindfulness, helping athletes to understand physical feelings and mental emotions that may come up. Athletes can enhance their mental performance and cope with stress more effectively by cultivating this mindfulness. Certain studies have shown that yoga positively affects the autonomic nervous system, which is essential for managing physiological reactions during athletic events. (Frank et al., 2020).

Nonetheless, it is crucial to recognize that the distinct advantages of yoga can differ based on the sport, the kind of yoga practice, and the personal requirements of each athlete. (Polsgrove et al., 2016). Consequently, integrating yoga into training regimens must be customized to the individual athlete's needs and blended carefully with other training methods. With thoughtful reflection, yoga can serve as a potent resource to improve athletic performance and general wellness for sportspeople.

As the research suggests, the integration of yoga into traditional training methods can provide a multifaceted approach to improving the physical and mental aspects of sports performance (Polsgrove et al., 2016).

Meditation and Sports Performance

In the constantly changing realm of sports, athletes and coaches are always looking for fresh and creative methods to improve athletic performance and gain a competitive advantage. An interesting field that has gained more focus is the possible influence of meditation on athletic performance. (Yaffé, 1981).

Meditation, a practice originating from ancient Eastern cultures, has demonstrated numerous advantages, such as better cognitive abilities, improved emotional control, and decreased stress and anxiety. (Cooper et al., 2021). Recent research has investigated the potential for these advantages to be reflected in enhanced athletic performance.

Furthermore, research has indicated that meditation can have a profound effect on the regulation of internal bodily states, such as heart rate and blood pressure (Khalsa et al., 2015). These physiological changes may be particularly beneficial for athletes, who often need to maintain optimal levels of arousal and motivation during competition.

Nonetheless, the degree to which meditation practices can directly affect athletic performance is still a subject of ongoing research. (Suinn, 1997) Researchers have emphasized the importance of more stringent study frameworks, utilizing placebo controls and exploring specific task-related results, to gain a clearer understanding of how meditation might improve athletic performance.

Although additional research is necessary, current evidence indicates that incorporating meditation-based techniques into athletic training and preparation could provide a valuable strategy for enhancing sports performance. As the area of sports psychology advances, the significance of meditation in improving athletic performance is expected to grow as a key focus of research and investigation.

OBJECTIVES OF THE STUDY

The study is to find out the effect of Chakra Meditation and Mindfulness Meditation on selected Psychological and physiological variables among athletes. The following objectives will be set for the study:

- To find out the effect of Chakra Meditation on selected Psychological and physiological variables among athletes before and after the administration of tests.
- To find out the effect of Mindfulness Meditation on selected Psychological and physiological variables among athletes before and after the administration of tests.
- To find out the difference between Chakra Meditation and Mindfulness Meditation training among athletes.
- To find out the difference between the controlled group and the experimental group athletes.
- To find out the changes in Stress, Anxiety, Depression, Mental well-being and Emotion Regulation among athletes before and after the administration of tests.
- To find out the changes in HRV, Oxygen Saturation level, Heart Strain, Breath Rate and Blood Pressure among athletes before and after the administration of tests.

RESEARCH QUESTIONS

The research questions formulated as follows:

1. Whether there is any effect on selected Psychological and Physiological variables after Chakra Meditation.

2. Whether there is any effect on selected Psychological and Physiological variables after Mindfulness Meditation.

3. Whether there are any significant differences in selected Psychological and Physiological variables between Chakra Meditation and Mindfulness Meditation.

STATEMENT OF THE PROBLEM

The present study shall focus on investigating the impact of Chakra meditation and Mindfulness meditation on selected psychological and physiological variables among athletes.

DELIMITATION

Based on the Researcher's own interest, capacity, and the scope of the study, the study is delimited to the following points:

- The study will be delimited to 45 Athletes from LNIPE Gwalior, Who has at least participated at University/National Level.
- The age group of the subject shall be delimited to 17-25 years.

- The study will be restricted to two different variations of meditation- Chakra Meditation and Mindfulness Meditation
- The following Psychological and physiological variables shall be selected for the purpose of this study:

Psychological variables:

1. Stress
2. Anxiety
3. Depression
4. Mental Well-being
5. Emotional Regulation

Physiological Variables:

1. HRV (Heart Rate Variability)
2. Oxygen Saturation level
3. Heart Strain
4. Breath Rate
5. Blood Pressure (Systolic and Diastolic)

LIMITATION

The changes which may take place in subjects because of their lifestyle, Physical & Mental Workouts done by them and their Nutritional Habits will be the considered as limitation for the present study.

HYPOTHESIS OF THE STUDY

It is hypothesized that

1. There will be no significant difference between the selected Psychological Variables among athletes who were exposed to Chakra Meditation and those who were exposed to Mindfulness Meditation.
2. There will be no significant difference between the selected Physiological Variables in university players who were exposed to Chakra Meditation and those who were exposed to Mindfulness Meditation.

SIGNIFICANCE OF THE STUDY

- This study may benefit the athletes to enhance the selected Psychological and physiological functions helping in the enhancement of Sports Performance
- This present study may also aid the athletes to find out and analyse their strengths and weaknesses and to work on these areas.
- This research study may spread awareness about the benefits of Yogic intervention on academic performance by enhancing the knowledge of the selected Psychological and physiological Aspects.

REVIEW OF RELATED LITERATURE

(Bossi et al., 2022) The purpose of this research was to assess the impact of an online mindfulness program on healthy workers, particularly following the initial Covid-19 lockdown in Italy. Individuals in the intervention group completed an 8-week online mindfulness training program rooted in the Mindfulness-Based Stress Reduction (MBSR) protocol, in contrast to a control group that received no intervention. Throughout the entire intervention period, all participants completed weekly surveys through online questionnaires that assessed their habits, mindfulness (FFMQ-15), emotion regulation (ERQ), positive and negative affect (PANAS), along with depression, anxiety, and stress (DASS-21), resilience (RSA), and insomnia (ISI). A total of 69 participants from the intervention group and 63 from the no-treatment control group were included in the longitudinal analyses. The results indicated notable differences between the intervention and control groups over time regarding mindfulness measures (especially the nonreactivity subscale), positive affect, depression, and insomnia. Furthermore, we discovered that the frequency of practice and the perceived ease of practicing were positively linked to various well-being measures (mindfulness, positive affect, cognitive reappraisal) and negatively linked to multiple stress indicators (negative affect, depression, anxiety, stress, insomnia, expressive suppression). These findings highlight the significance and efficacy of online mindfulness training programs in helping employees manage stress, particularly following the Covid-19 lockdown.

(Jagadeesan et al., 2022) In this research, we investigated how the Bhramari Pranayama intervention impacts the psychological distress of patients in home isolation. Ninety-two asymptomatic COVID-19 patients were recruited from the host hospital, and those willing patients who met the inclusion criteria ($n = 42$) were chosen for the study. The patients participated in a 15-day online Bhramari pranayama intervention (20 min). Participants were evaluated using the Depression Anxiety and Stress Scale-21 (DASS-21), Pittsburgh Sleep Quality Index (PSQI), and Quality of Life (WHOQOL-BREF) both at the start and after the intervention. Results indicated a significant ($P < 0.05$) decrease in DASS-21 scores for

depression, anxiety, and stress. Moreover, the patients reported notable enhancements in sleep quality (PSQI; $p < 0.05$) and quality of life (WHOQOL-BREF; $p < 0.05$) following the intervention. Our results show that the Bhramari technique positively influenced psychological well-being and sleep quality in COVID-19 patients undergoing home isolation. Nonetheless, it must be validated through multi-site randomized controlled studies.

(Inbaraj et al., 2022) to examine the influence of OM chanting on autonomic modulation, through heart rate variability (HRV), in seasoned yoga practitioners and those inexperienced in yoga. The current research sought to explore the impact of OM chanting on autonomic modulation, assessed through heart rate variability (HRV), in both seasoned yoga practitioners and individuals new to yoga. The Mann–Whitney U test for baseline comparison between groups indicated that yoga practitioners exhibited a significantly greater high frequency (HF) power ($P < 0.029$) compared to non-yoga practitioners, reflecting a state of calmness prior to the chanting of OM. Following 5 minutes of intense chanting of OM, a comparison between the groups assessed using the Wilcoxon Signed Ranks test showed: HF Power, which is part of the parasympathetic nervous system, was notably enhanced with a significant rise ($P < 0.001$) in the group of yoga practitioners when compared to non-yoga practitioners. Additionally, this rise in HF power showed a positive relationship with the number of years practiced in yoga. The current research demonstrated that a short chanting of OM (5 min) could boost parasympathetic nervous system function, encourage relaxation, and induce tranquility. Moreover, this experience is likely to be attained more effectively by individuals skilled in yoga compared to those who do not practice it.

(Choukse et al., 2019) to assess the impact of yoga practice on psychosocial well-being in adolescents. A unified study on a single group, before and after yoga intervention, was conducted across three separate cohorts (batches 1, 2, and 3), with sample sizes of 148, 167, and 195 respectively. A 7-day comprehensive yoga program was conducted in a residential environment. Psychosocial evaluations encompassed social skills, empathy, kindness, parental relationships, and friendships among peers. Data were gathered before and after for all adolescent participants, while pre- and post-data were obtained from 340 parents and 43 parents only. The aim of the analyses was to assess the impact of the yoga program and verify

the reliability of these effects. Notable changes ($P < 0.05$) were observed in social competence, empathy, and altruism in groups 2 and 3, while batch 1 exhibited nonsignificant enhancements. Examinations of the parental data revealed a notable enhancement in parent relationships ($P = 0.035$) along with a nonsignificant improvement in all other results. Findings indicated that yoga practices could enhance psychosocial well-being in teenagers. It additionally showed that implementing yoga was appropriate and practical in a residential environment.

(Harne et al., 2019) to categorize the EEG band to detect sudden variations in the band as a result of Om mantra meditation. Twenty-three inexperienced meditators participated in an experiment to chant the OM mantra for 30 minutes, with EEG signals recorded before and after the meditation session. The stationary wavelet transform is utilized to extract five bands from the EEG. The various statistical characteristics were computed. The band is classified using an SVM classifier with a Radial Basis Kernel. The findings indicate notable alterations in the delta band, reflecting the brain during deep sleep. Therefore, OM meditation provides the sensation of profound rest. The research may provide a new perspective on meditation.

METHODOLOGY

In this chapter, the procedure which shall be adopted for description and selection of subjects, selection of variables, criterion measures, administration of tests, collections of data, details of training protocol, statistical techniques employed for analysis of the data are presented.

SELECTION OF SUBJECTS

For the present study, fourty-five (45) participants (only male university/national players) with age ranging between 17-25 years and resident of LNIPE, Gwalior shall be selected randomly. The selected subjects shall be randomly placed in equal number among three groups (2 training groups and 1 control group; 15 in each group). The randomly assigned treatment shall be administered.

SELECTION OF VARIABLES

Based on the review of literature availability, expert's opinion, instrument availability, and scholar's own interest on the problem, following physiological and psychological variables are selected.

I. Dependent variables:

1. Psychological Variables:

a. Stress

b. Anxiety

c. Depression

d. Mental Well-being

e. Emotion Regulation

2. **Physiological Variables:**

   a. HRV (Heart Rate Variability)

   b. Oxygen Saturation Level

   c. Heart Strain

   d. Breath Rate

   e. Systolic and Diastolic Blood Pressure

II. Independent Variables:

1. Chakra Meditation
2. Mindfulness Meditation

CRITERION MEASURES

The variables shall be measured with the aid of following instruments and methods:

Lists of Criterion Measures and Unit of Measurement

Sl. No.	Variables	Test Instrument/ Questionnaire	Unit
1.	Stress	DASS Questionnaire	-
2.	Anxiety	DASS Questionnaire	-
3.	Depress	DASS Questionnaire	-
4.	Emotion regulation	Emotion Regulation questionnaire	-
5.	Mental Well-being	WHO-5 Well-being Index	-
6.	Blood Pressure	Sphygmomanometer	millimetres of mercury (mmHg)
7.	Oxygen Saturation Level	Pulse Oximeter	percent (%)
8.	HRV (heart rate variability)	Fourth Frontier X2	milliseconds (ms)
9.	Heart Strain	Fourth Frontier X2	strain rate/Second
10.	Breath Rate	Fourth Frontier X2	Breaths/Minute

COLLECTION OF DATA AND ADMINISTRATION OF TESTS

The subjects will be divided into different groups i.e., Treatment Group-1 and Treatment Group-2 and Control group. Chakra Meditation and Mindfulness Meditation will be given as per the training schedule of 5 days per week of twelve weeks. The pre-test and post-test data

on the selected criterion variables will be collected by administering the test as per the standardized procedures at prior and after twelve weeks of the training programme.

STATISTICAL ANALYSIS

For assessing the data of the study, descriptive statistics will be used. To find out the significant difference among the different variations of chakra meditation and mindfulness meditation on selected psychological and physiological variables, pair- t test and two-way ANOVA test will be used at 0.05 level of significance in SPSS 26.

EXPECTED OUTCOME OF THE STUDY

This study may benefit the athletes to enhance the selected Psychological and physiological functions helping in the enhancement of Sports Performance. This present study may also aid the athletes to find out and analyse their strengths and weaknesses and to work on these areas. This research study may spread awareness about the benefits of Yogic intervention on academic performance by enhancing the knowledge of the selected Psychological and physiological Aspects.

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